

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of Michael E. Seitz                      Art Unit 1611  
Serial No. 10/728,654  
Filed December 5, 2003  
Confirmation No. 8454  
For MICROCAPSULES WITH AMINE ADJUSTED RELEASE RATES  
Examiner Barbara S. Frazier

March 16, 2011

**SUPPLEMENTAL RESPONSE TO FINAL ACTION**

DIRECTOR OF THE UNITED STATES PATENT AND  
TRADEMARK OFFICE  
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SIR:

As promised during the telephone interview of Monday, March 14, 2011, Applicants attach three separate plots of the half life data respectively reported in: (i) Seitz et al. US 5,925,595 for half life vs. ratio of different polyisocyanates; and (ii) pending Ser. No. 10/728,654 for half life vs. ratio of different polyamines.

It is respectfully requested that these plots be entered in the record and considered in connection with Applicants' traversal of the final rejection.

In each of the three plots, as agreed during the interview, both the half lives for the isocyanate combinations of Seitz and the half lives for the amine combinations of the instantly claimed invention are plotted on the same field and to the same scale vs. ratio of respective reactants.

In the first plot, Exhibit A, the half life is plotted on an arithmetic scale of 0 to 150 days; in the second plot, Exhibit B, the half life is plotted on an arithmetic scale of 0 to 350 days; and in the third plot, Exhibit C, the half life is plotted on a logarithmic scale ranging from 0 to 10,000 days. Both the 5 day and 100 day half life limits called for by the pending claims are indicated on each of the three plots.

It may be seen that the data for combinations of different amines fall on smooth curves, each providing a substantial range of compositions that fall within the 5 to 100 day half life, without sharp reversals or discontinuities. In the case of Example 1, the rise in half life is fairly steep between an amine ratio of 60/40 and a ratio of 80/60, but this is not a discontinuity of the type reflected in the prior art curves, and with respect to Example 1 there remains a wide composition range, i.e., between about 45/50 and 60/40 or 65/35 in which the half life can be reliably controlled in the 5 to 100 day range. Half lives falling within the claimed range fall predictably within even broader amine ratio ranges for the amine combinations of Examples 3 and 6.

By comparison, a substantial portion of the '595 patent data are far off the chart, and the half life value changes precipitously with very minor change, or no change, in the polyisocyanate ratio.

We respectfully submit that these plots definitively illustrate the major improvement in reliable control of half life in the claimed 5 to 100 day range that is provided by the process of the claimed invention.

As explained during the interview, one skilled in the art had no basis for predicting the efficacy of a combination of different amines from the prior art Seitz disclosure of a combination of different isocyanates. Unpredictability would have arisen from numerous technical considerations, including: (1) that the source of the amine is the aqueous external phase whereas the source of the isocyanate is the internal oil phase; (2) that there was no way to predict that mass transfer factors would have the same effect for a combination of amines as for a combination of isocyanates; (3) that there was no basis for predicting that kinetic factors would be similar; (4) that it was known that the reaction was likely to predominantly occur in one phase or the other; (5) that if the reaction took place in the oil phase, the amine would need to be transported across the phase barrier and, if the reaction took place in the aqueous phase, the isocyanate would need to be transported across the phase barrier; (6) that the phase equilibria were not taught by Seitz; (7) that, because one reactant or the other would need to be transported across the barrier, there was no basis for predicting that a combination of the reactants to be transported would behave in the same way in the reaction as a combination of reactants which do not need to be transported across the phase boundary; etc.

For all these reasons, it was explained that the claimed process would not have been *prima facie* obvious from Seitz.

These plots confirm that the performance of microcapsules prepared from a combination of amines could not be predicted from the data of the Seitz et al. reference for combinations of isocyanates. But they also show how one skilled in the art can use Applicants' disclosure to provide a variety of amine

combinations that yield half lives within the 5 to 100 day range.

Moreover, assuming for purposes of argument only that the invention as claimed were *prima facie* obvious, the starkly different results are respectfully submitted to overcome *prima facie* obviousness.

Respectfully submitted,

/John K. Roedel, Jr./

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